The Roller Bandage

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Calif.

THE

ROLLER BANDAGE.

BY

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WITH SEVENTY-THREE ILLUSTRATIONS.

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PREFACE.

THE plan which has been adopted in this book, as will be seen at a glance, is to teach by numerous illustrations rather than by elaborate description the method of applying the roller bandage. In order that the student may most readily familiarize himself with this very important subject, a series of illustrations are presented which were made in the following manner: Each bandage was applied to a living model, and whenever the roller pursued a course which the author has found in his association with students was the cause of any uncertainty, it was at once photographed. From these photographs accurate drawings were made by the artist, Mr. J. L. Wallace. In this way it is hoped that the intricate course traversed by the roller in the most complex dressing has been made sufficiently plain to enable the student to apply it for himself almost unaided by the text. The

latter will be found very brief and devoid of everything but the rule for application and the use to which the dressing is commonly put.

A series of definitions and general rules for bandaging occupy the earlier pages of the book.

W. B. H.

CONTENTS.

THE ROLLER BANDAGE.

Definition.—The term roller bandage is generally used to indicate a strip of muslin rolled into a cylindrical form like tape. When other material than muslin is employed, as India-rubber, linen, flannel, crinoline, or silk, it is usually designated as a rubber bandage, a linen bandage, or a crinoline bandage.

Material.—Unbleached muslin of medium quality, which costs about eight cents a yard, is best adapted for ordinary purposes. This may either be torn into strips of the proper length and breadth, removing the selvedge and leaving the ravel as much undisturbed as possible, or it may be cut, when a great number are required, as is now done at the Pennsylvania Hospital. By a very simple process used in the large cloth-houses, a piece of muslin can be cut into three hundred and sixty bandages in a few minutes.

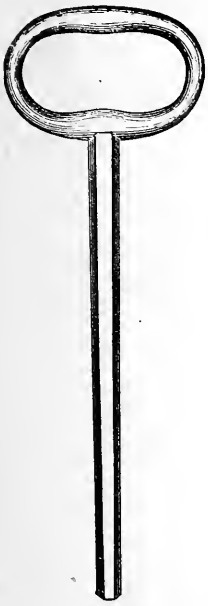
Rolling.—The strip of muslin having been torn or cut, may be rolled either by hand, by a key, or by a machine. In rolling by hand, one extremity of the bandage is folded upon itself three or four times, when it is handled as a cigarette is rolled until the core becomes sufficiently firm to resist pressure on end. It is then held between the thumb and index finger of the left hand, and is made to revolve upon its long axis by the thumb and fingers of the right hand, as shown in Fig. 1.

Fig. 1.

A bandage may be more quickly and firmly rolled by using a key, shown in Fig. 2. This is made of brass, has an ordinary key-handle, a tapering octagonal shaft, and a smooth tip. The

dimensions of the shaft are,—four inches in length, one-quarter of an inch in diameter at the shoulder, and one-fifth at the tip. After fixing one extremity of the bandage on the key, the latter is made to revolve by the right hand, while the left holds the tip of the instrument in its palm, and guides the course of the bandage between

Fig. 2.



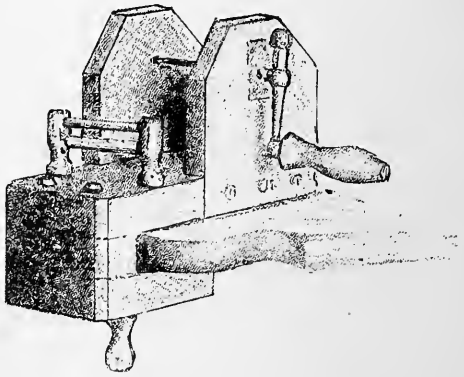
Author's Key for Rolling Bandages.

Fig. 3.

the thumb and fingers. When the roller has reached a certain size, it may be held in the manner shown in Fig. 3. Any tendency of the roller to run off its proper course may be overcome by pressure with the little finger of the left hand, if it deviates towards the handle of the key, and by pressure with the index finger if towards the tip.

The bandage machine consists of a reel, with a crank and octagonal shaft, mounted upon a base which is made to screw to a table. Set in the base are two uprights, which support wooden rods. Through these the bandage travels in its course from the left hand to the reel, their object being to regulate the direction and tension of

Fig. 4.



the roller. After the bandage is rolled, it may readily be withdrawn from the machine by reversing the direction of the crank and pulling out the shaft, as the latter is quite movable. This apparatus is shown in Fig. 4.

Size.—Although bandages vary in length from two to ten yards, and in width from three-quarters of an inch to four inches, there are two

sizes in common use with which almost any dressing may be applied. They are the roller (two and a half inches by seven yards) and the finger roller (three quarters of an inch by three yards). For children under ten years of age, the length and breadth of a bandage suitable for an adult may each be divided by two.

Uses.—The roller bandage is used for so great a variety of purposes that it would be quite beyond the scope of these definitions to attempt to enumerate them, except in the most general way. To retain almost all dressings and splints. To prevent or control œdema, oozing of blood or serum, spasm of muscles after fracture, or as itself a fracture dressing. In fact, almost everywhere that surgical interference is required.

Tension.—Too much care cannot be exercised in applying a bandage in each individual case, to estimate how much tension should be used, in order to fulfil the object for which it is employed, advantageously and prudently.

A bandage may be applied *tightly*, *moderately*, or *loosely*. These grades may be readily tried upon one's own person. A tight bandage makes a healthy hand throb. A bandage moderately

applied gives the support of a comfortable glove, and a loose bandage is one which may retain a compress resting upon the eye without discomfort. The conditions governing the tension of the roller will be formulated as (*a*) those depending upon the roller itself, and (*b*) those which exist in the part bandaged:

a. 1. *The Circumference of the Part bandaged.*—The greater the circumference the more force must be used. Thus, in applying a roller to the lower extremity, it is necessary, in order to secure an equal support for the entire limb, that each turn covering a greater circumference should be drawn a little more firmly than the preceding turn. The thigh turns requiring considerably more force to produce a given tension than those at the ankle.

2. *Whether the Bandage includes the entire or only half the Circumference of the Limb, as in the Application of Splints.*—When these are applied, much of the force used is expended upon them, the limb receiving less pressure than if the roller surrounded it alone.

3. *Incomplete Bandaging.*—Any bandage which leaves a considerable portion of the distal ex-

tremity of a limb uncovered is very liable to induce swelling. If the hand or the foot is left uncovered, while the rest of the limb is bandaged, swelling is very likely to occur. Once started, it progresses very rapidly, because it increases the tension of the lower border of the bandage. This of course promotes the swelling, and so these active and passive agents react upon each other to the complete strangulation of the limb.

4. *The Character of the Dressing beneath.*—Where a mass of soft yielding material like cotton or charpie is interposed, much more force is necessary to give the requisite tension than where a thin dressing or none at all is used.

5. *Increase of Tension from Flexion or Extension.*—If a spica bandage is applied to the shoulder with the arm elevated, its tension will be much increased by bringing the arm to the side of the body. In the same manner the tension of a spica of the groin, applied with the thigh flexed upon the abdomen, will be increased when the latter is extended.

6. *The Number of Turns.*—Each additional turn applied to the same part of a limb increases the tension nearly double. When, therefore, a roller

starts at the wrist, passes to the hand, and returns to the wrist, the latter receives too much tension, unless the first wrist turns are made very loosely. The same is true to a less extent when successive turns are made very close together.

7. *Shrinkage.*—Due allowance should always be made for shrinking of the muslin, if it is known or suspected that from any cause it will become wet.

b. 1. *Texture and Condition of the Tissues.*—Hard infiltrated tissue, such as is frequently found accompanying ulcers of the leg, requires very firm pressure, while very moderate pressure only can be employed in bandaging the flabby unresisting limbs of delicate children and aged persons. An acute inflammatory condition of a part will not admit of pressure, while very considerable tension is well borne by a doughy œdematous condition of the tissues.

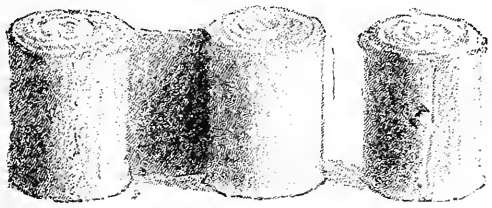
2. *Habit.*—Independent of advance or subsidence of swelling, a bandage may be applied more firmly when the patient has become accustomed to its presence.

3. *Situation.*—Care must be observed, when

bandages about the chest are applied, that respiration shall not be interfered with, particularly if the dressing is completed before the patient has quite recovered from the effects of an anæsthetic.

4. *Change in Position.*—Marked swelling always occurs when a limb which has been kept horizontal for many weeks is suddenly allowed to hang. In this way a fixed dressing of silicate of

FIG. 5.



sodium or plaster of Paris, comfortable while the patient is on his back, frequently has to be cut when he gets up.

Varieties.—The single roller, which is almost invariably used, and the double roller. They are shown in Fig. 5.

Parts of the Roller.—The single roller is composed of seven parts,—the initial and terminal extremities, the upper and lower borders, the

external and internal surfaces, and the body. The initial extremity is the free, and the terminal extremity is in the centre of the cylinder. The borders are designated according to the position they occupy when the subject stands erect. The surfaces are denoted by their relation to the centre of the cylinder, and the body includes all. The double roller has eight parts,—two terminal extremities, two borders, two surfaces, two bodies, and no initial extremity.

APPLICATION.

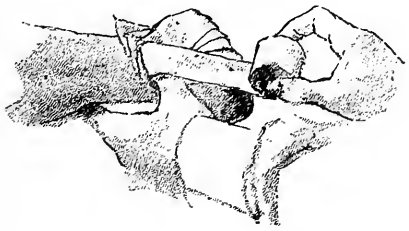
To Fix.—A roller is fixed by placing the external surface of the initial extremity upon the point at which it is to start with the thumb and index finger of the left hand. With the body of the roller held in the right hand two turns are made in the direction taken by the hands of a clock. The first turn must be made by the right hand alone, after which the left hand, being free, may alternate with it.

To Repeat.—To repeat is to make a second turn completely hide a preceding turn. This is always done in a circular bandage, and in fixing the initial extremity.

To Overlap.—To overlap is to make a second turn cover one-half, two-thirds, or three-quarters of a preceding turn. This is done in all spirals.

To Recur.—To recur is to catch a turn at some point and reflect it upon itself, so that it either

FIG. 6.



exactly retraces its course or slightly diverges in another direction (Fig. 6). This is done in re-

FIG. 7.

currents of the stump (Fig. 7) and the recurrent of the scalp.

To Reverse.—To reverse is to bring the internal surface of the roller next the skin instead of the

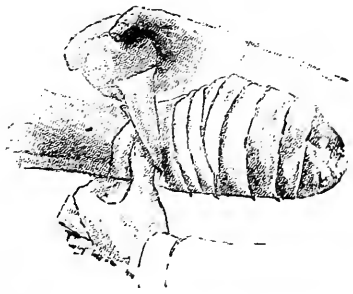
external. The right hand being in a state of supination when it receives the body of the roller from the left, makes a reverse by simply being pronated (Fig. 8). While the right hand

Fig. 8.

effects this movement, the thumb or index finger of the left is placed upon the last turn, which has been applied in order to retain it in position, as the free portion of the roller should hang perfectly slack when the reverse is being made. After making the reverse, the roller is passed around the limb and delivered to the left hand, and not until then is the traction necessary to produce the required tension employed. The succeeding reverses are made in the same way, and they will be even and symmetrical if the

thumb or index finger of the left hand is placed in the same perpendicular line it before occupied while retaining the preceding turn, and if each turn is made to overlap the preceding one to the same extent in its entire circumference. The object of the reverse is to make the roller adapt itself to a conical cylinder, whose diameter is increasing, as from the ankle to the calf.

FIG. 9.

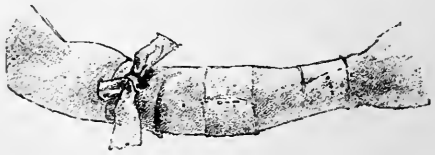


To Reverse Descending.—To make a descending reverse, the right hand is placed in a state of pronation when about to receive the body of the roller from the left, and is simply turned to supination, while the left thumb retains the turn already made as in the ordinary reverse (Fig. 9). The descending reverse becomes necessary when the roller is applied to a part the diameter of

which is constantly diminishing, as in the leg from the calf to the knee when the former is very large, and when thickly padded splints are applied to the hand, etc.

To Secure.—To secure the terminal extremity of the roller, either a pin is used, which includes one or more of the previous turns, or the end is slit into two tails, which are carried around the part in opposite directions and tied. The pin may be introduced parallel or at right angles with the long axis of the roller. These methods of securing are shown in Fig. 10. The pin

Fig. 10.



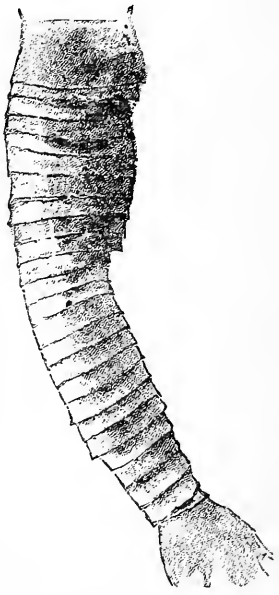
should always be directed downwards; it should appear to view at least twice in its course through the underlying layers of muslin, and its point should be carefully buried. These precautions are necessary to prevent the pin doing harm, as the hand is usually carried down the limb to ascertain if the roller has been properly applied.

To Remove.—When removing the roller, each turn should be gathered compactly in the hand, no loops or ends being allowed to trail.

SPECIAL BANDAGES

A Circular Bandage.—A circular bandage consists of a series of three turns which repeat each other.

Fig. 11.



A Spiral Bandage.—A spiral bandage is one each turn of which, after the initial extremity is fixed, overlaps one-half, two-thirds, or three-quarters of the preceding turn. Such a bandage applied to a part having various diameters will not adapt itself (Fig. 11).

An Oblique Bandage.—An oblique bandage resembles a spiral, except that the limb is ascended so rapidly that the borders of the turns do not touch. It is only used to retain a temporary or loose dressing (Fig. 12).

A Spica Bandage.—A spica bandage is composed of two sets of turns alternating with one another, and coming in contact only at the point where it is intended to make pressure or retain a dressing.

FIG. 12.

A Figure-of-Eight Bandage.—A figure-of-eight bandage frequently resembles a spica very closely. It also is composed of two sets of turns made in different directions, but the direction of these turns gradually converges.

A Spiral Reversed Bandage.—A spiral reversed bandage consists of a series of spiral turns, most of which have been reversed.

A Recurrent Bandage. (See *To Recur*, page 19.)

BANDAGES OF THE HEAD.

All bandages applied to the head, except Barton's, are fixed either by circular turns running horizontally about the vault of the cranium, or

Fig. 13.

by circular turns vertically around the face. After the former method are fixed the crossed of the angle of the jaw, recurrent of scalp,

figure-of-eights of the eye, Hunter's, White's, and the knotted bandage (Fig. 13), while Gibson's

FIG. 14.

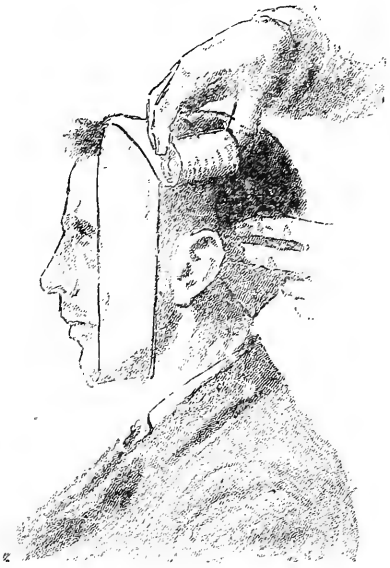
and the occipito-facial are fixed by the latter (Fig. 14).

BARTON'S BANDAGE.

2 inches by 5 yards.

Place the initial extremity of the roller behind the ear on the sound side. Carry the roller

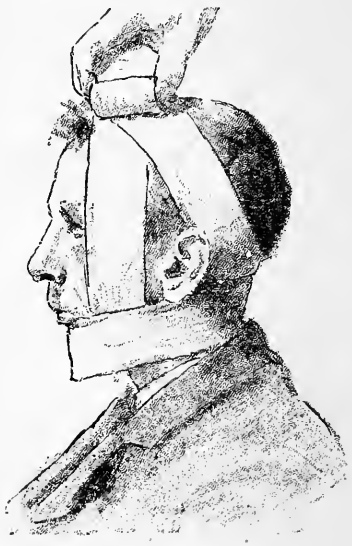
FIG. 15.



beneath the occiput to a corresponding point behind the ear on the injured side. Thence to the vertex, and down the sound side of the face to the chin. Up on the injured side to the ver-

tex, intersecting the former turn directly in the median line, and back to the starting-point. Not until then is the bandage fixed. The fingers holding the initial extremity are now released,

FIG. 16.



and the roller may be conveniently passed from one hand to the other (Fig. 15). The roller passes from here to the occiput, and along the injured side of the jaw to the chin, and back to the occiput. From the occiput to the vertex (Fig. 16). Each of these turns is repeated in

a similar manner twice, when the bandage is terminated at the vertex. Every intersection requires a pin (Fig. 17).

Fig. 17.

Uses.—Fracture of the body of the lower jaw, after luxation, and to retain dressings at various points along the course traversed by the bandage.

It is also a useful substitute for the leather head-gear of Sayre's suspension apparatus for applying the plaster jacket, when the latter is not available.

GIBSON'S BANDAGE.

2 inches by 5 yards.

Fix the roller by vertical turns around the face. The direction it takes in starting is determined by the location of the fracture, the roller always ascending on the injured side. After making three of these vertical turns, a right-angled reverse is made at the temple, on whichever side is most convenient, and the bandage carried back to the occiput (Fig. 14). Three horizontal turns are then made around the vault of the cranium, and on reaching the occiput the third time the chin turns are begun. These are made by carrying the roller beneath the ear, along the side of the jaw to the front of the chin, and back to the occiput. Three of these turns are made. On reaching the occiput the third time, the bandage is completed by a right-angled reverse at this point, whence it is carried over the top of the head to the forehead in the median line (Fig. 18). A pin is introduced at the reverse over the occiput, and at each inter-

section. It will be seen to consist of three sets of circular turns.

Fig. 18.

Uses.—Fracture of the body of the lower jaw, after luxation, and to retain dressings.

OCCIPITO-FACIAL BANDAGE.

2 inches by 2 yards.

Fix the roller by vertical turns around the face. After making three of these turns, re-

verse over the temple on the most convenient side, and carry the roller to the occiput, and back to the opposite temple. It may be pinned here (Fig. 19), or continued around the forehead to the point at which the reverse was made. The re-

FIG. 19.

verse must also be pinned. The bandage is simply the first and part of the second circulars of Gibson's.

Uses.—To restrict the movement of the jaw after luxation, and to retain dressings.

CROSSED BANDAGE OF THE JAW.

2 inches by 5 yards.

Fix the roller about the vault of the cranium, delivering it from the left to the right hand, if the jaw is fractured on the left side, and from the right to the left, if the fracture is on the right side. On reaching the occiput the third time, carry the roller beneath the ear, under the chin to the angle of the mouth on the opposite side. Ascend to the vertex. Descend behind the ear on the sound side to the throat, and up again on the injured side to the vertex. Each ascending turn overlaps the preceding turn three-quarters. Each descending turn passes behind the ear on the sound side, and exactly repeats the preceding turn. So continue until the angle of the jaw on the injured side is covered. This is usually accomplished in about four turns, when the bandage may be pinned (Fig. 20), or a right-angled reverse made over the temple, and a circular turn, repeating those applied at the beginning, carried around the head.

Fig. 20.

Use.—Fracture of the lower jaw with troublesome lateral displacement.

RECURRENT BANDAGE.

2 inches by 7 yards.

Fix the roller about the vault of the cranium. On reaching the occiput the third time, make a right-angled reverse, and carry the roller in the median line over the top of the head to the

brow, at which point the finger of an assistant must hold the bandage. Recur to the occiput, overlapping three-quarters of the first turn on one side. Recur to the forehead, overlapping three-quarters on the other side of the first turn. So continue until the entire scalp is covered, when two circular turns are made to fix the recurrents. Pin deeply into the layers in front and at the back (Fig. 21).

Fig. 21.

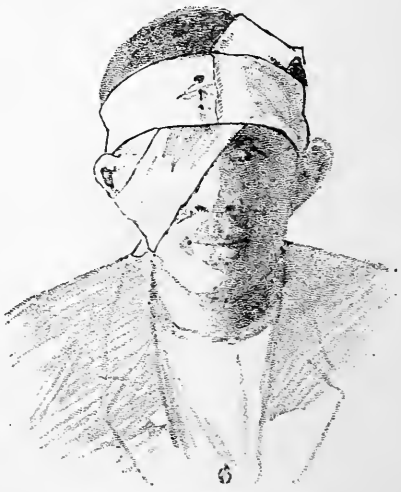
Uses.—To retain dressings to the scalp, and to make compression.

FIGURE-OF-EIGHT BANDAGE OF ONE EYE

2 inches by 5 yards.

Fix the roller about the vault of the cranium. bandaging from left to right, if the right eye is to be covered, and from right to left, if the left eye. On reaching the occiput the third time,

FIG. 22.



pass the bandage below the ear, across the eye, and to the tuberosity of the parietal bone on the opposite side. Thence to the occiput. Repeat this turn twice, and again follow the fixing turns around the head. Pin both intersections (Fig. 22).

Uses.—To retain dressings, and make compression upon the orbit.

FIGURE-OF-EIGHT BANDAGE OF BOTH EYES.

2 inches by 7 yards.

Fix the roller around the head. Cover one eye as in the preceding bandage, and, after mak-

FIG. 23.

ing one circular about the head, proceed on reaching the occiput to cover the other eye in a similar manner (Fig. 23).

Uses.—To retain dressings, or compress both eyes.

HUNTER'S V BANDAGE.

2 inches by 3 yards.

Fix the roller about the vault of the cranium. On reaching the occiput the third time, carry the bandage beneath the ear, along the jaw to the

FIG. 24.

front of the chin, and back to the occiput. Then alternate between head and chin turns, making two or three of each. This bandage follows the same course as the second and third circulars of Gibson's (Fig. 24).

Uses.—To fix dressings, and retain parts in apposition about the chin and lips.

WHITE'S HEAD AND NECK BANDAGE.

2 inches by 3 yards.

Fix the roller about the vault of the cranium, and on reaching the occiput the third time, pass

FIG. 25.

directly down in front of the throat. Alternate two or three head and neck turns, and pin the bandage at the most convenient point (Fig. 25).

Uses.—To apply dressings, or approximate wounds in front of the neck.

KNOTTED BANDAGE.

2 inches by 7 yards.

For this a double-headed roller is employed. Place the free portion between the bodies upon the temple on the injured side, and carry the heads around the vault of the cranium to a corresponding point on the opposite side. Here the heads of the roller pass each other, and continue their course back to the starting-point. When this point is reached, they make a half turn upon each other, and pursue a vertical course around the face, passing as before on the sound side. Reaching the injured side again, another hitch is made, and the roller carried horizontally around the head. So alternate face and head turns until three or four knots have been made, when the terminal extremities may

be tied together or pinned at the most convenient point (Fig. 26).

FIG. 26.

Use.—To control hemorrhage from the temporal artery.

BANDAGES OF THE UPPER EXTREMITY.

DESAULT'S BANDAGE.

This bandage is compound in character, requiring for its application three rollers and a wedge-shaped pad. The pad is made of strong

Fig. 27.

muslin stuffed with hair or bran, is about five inches square, two inches thick at the base, and bevels off to nothing at the apex (Fig. 27).

FIRST ROLLER OF DESAULT.

2½ inches by 5 yards.

Place the initial extremity of the roller on the pad, the base of which is thrust into the axilla on the injured side, and make four spiral turns,

FIG. 28.

encircling the thorax and pad. On reaching the pad the fourth time, carry the roller well down under its apex, and thence across the front of the chest to the shoulder on the sound side.

Here a figure-of-eight turn around the arm is made, and the roller conveyed across the back to the apex of the pad again. Two more of these turns are made, either repeating each other, or, as shown in Fig. 28, overlapping to form a spica on the shoulder. The terminal extremity is then pinned at the most convenient point in front.

Use.—The spiral turns are to fix the pad, and the figure-of-eight turns to force it up into the axilla. A towel folded into a pad, and kept in place by a strip of adhesive plaster, is a more convenient plan for obtaining the indications of the first roller.

SECOND ROLLER OF DESAULT.

2½ inches by 7 yards.

Fix the initial extremity of the roller by two circular turns, which include the thorax and the arm on the injured side. They pass over the head of the humerus and under the sound axilla. Descend the chest and arm by spirals, overlapping one-half. These turns must constantly

increase in tension until the elbow is reached, when the bandage is pinned. The spirals may somewhat converge on the sound side, so that they overlap three-quarters (Fig. 29).

FIG. 29.

Use.—To force the head of the humerus outwards. This is done by the action of the lower spiral turns. These being applied with more tension than the upper ones convert the shaft of the bone into a lever, the fulcrum of which corresponds to the pad.

THIRD ROLLER OF DESAULT.

2½ inches by 7 yards.

Place the initial extremity of the roller under the axilla on the sound side, and carry it obliquely across the front of the chest to the middle of the summit of the shoulder on the injured

FIG. 30.

side. Down behind the humerus, and parallel with it, to the elbow; under the latter, and across the front of the chest to the axilla on the sound side, where the initial extremity is met and fixed (Fig. 30). The roller now passes under the axilla,

obliquely across the back to the middle of the summit of the shoulder on the injured side. Down in front of the humerus, and parallel with it to the elbow; under the elbow, and across the back to the axilla on the sound side, which com-

FIG. 31.

pletes one entire turn,—an anterior and a posterior triangle (Fig. 31). From this point it emerges, and is in position to cross the front of the chest to the shoulder on the injured side as before, and descend behind the humerus, and pass under the elbow, back again to the axilla.

Another posterior turn is then made. In this way three anterior and three posterior triangles are formed, which exactly repeat each other, and the end of the roller is pinned at any point in front. Each intersection also must be secured by pins or adhesive plaster, and a sling to sup-

FIG. 32.

port the forearm and hand completes the dressing (Fig. 32).

Use.—To draw the shoulder upwards and backwards. To accomplish this, it is evident that the posterior turns must be applied with more tension than the anterior.

The bandage of Desault as a whole is employed usually for fracture of the clavicle. Portions of the dressing are, however, frequently used for other purposes. The second roller being applied when it becomes necessary to retain the arm to the side of the body for any cause, as in fracture of the humerus. The third roller may be used after dislocation of the head of the humerus or of the acromial end of the clavicle.

THIRD ROLLER OF DESAULT MODIFIED BY AUTHOR.

In order to obtain a more direct elevating force, the third roller may be applied as shown in Fig. 33. To do this, place the initial extremity under the sound axilla, carry the roller obliquely across the front of the chest to the shoulder on the injured side, down behind the arm and parallel to it, and under the elbow, as in Desault. From the elbow the roller ascends obliquely across the forearm and front of the chest *to the summit of the shoulder on the sound side, and down*

obliquely across the back to the elbow on the injured side. Thence it ascends the arm to the shoulder on the injured side, and returns across the back to the axilla on the sound side. Here it fixes

FIG. 33.

the initial extremity, and two more similar turns are made, which exactly repeat each other, when the terminal end is secured as in the original bandage. The anterior turns applied in this way lose to a great extent their power to draw the shoulder forward. The necessary precaution, to use more tension for the posterior than the an-

terior turns, when the roller is applied in the ordinary way, is therefore not required, as the direction of the forces and their relative points of application are of themselves sufficient to effect this result, and to gain a greater elevating force.

VELPEAU'S BANDAGE.

2½ inches by 14 yards (two seven-yard rollers).

Place the initial extremity over the spine of the scapula on the sound side. Having placed the hand on the injured side upon the sound shoulder, carry the roller across the back to the injured side, pursuing the following course: the middle of the summit of the shoulder; the middle of the outer aspect of the arm, behind the elbow, across to the axilla on the sound side, and under it to the starting-point. Repeat this turn to fix the bandage (Fig. 34). On reaching the scapula the second time, make a circular turn around the thorax, including in it the arm on the injured side. The external condyle of the humerus being the point over which the middle

FIG. 34.

FIG. 35.

of the roller passes (Fig. 35), on its way back to the starting-point. A shoulder turn is now made, which overlaps the fixing turn three-quarters towards the median line of the body. Then another circular (spiral) turn overlapping the

FIG. 36.

preceding turn one-half. So, shoulder turns and spiral turns alternate until the former support the point of the elbow. After this spiral turns alone are continued, until the entire injured extremity up to the wrist is thoroughly supported. No sling is used in this dressing. Pins or ad-

hesive plaster must be generously used at critical parts (Fig. 36).

Uses.—Fracture of the clavicle, and after dislocation of the humerus.

FIGURE-OF-EIGHT BANDAGE OF THE NECK AND AXILLA.

2 inches by 4 yards.

Fix the initial extremity by circular turns

FIG. 37.

around the neck. Descend from the neck to the

axilla, carrying the roller from before backwards, if the right axilla is to be included, and from behind forwards, if the left. Pass under the axilla, ascend to the neck, and encircle it. So alternate until three turns have been made, either repeating one another, or, as shown in Fig. 37, overlapping three-quarters. This bandage cannot be applied so as to adapt itself neatly to the parts. It may be pinned at any point, preferably at the intersections.

Uses.—To retain dressings in the axilla, and to approximate wounds in the side of the neck.

SPICA BANDAGES OF THE SHOULDER.

ASCENDING SPICA.

2½ inches by 7 yards.

Fix the initial extremity just above the middle of the arm on the injured side. Carry the roller across the front of the chest (if the right is the injured side, across the back if the left) to the opposite axilla; passing under this, return by the

back (or by the chest if the left side is being bandaged) to the injured side. In the ascending spica the lower border of the roller determines the position of the spica. This turn, therefore, should cross the previous turn, so that the lower

Fig. 38.

borders of both intersect at the outer side of the arm (Fig. 38). Encircle the arm and overlap, ascending two-thirds. Pass to the opposite axilla, gradually converging with the preceding turn so that at this point it will repeat it. So alternate between body and arm turns until the

shoulder is covered, when the bandage may be secured by a pin at the spica (Fig. 39).

FIG. 39.

Uses.—To retain dressings to the shoulder, to complete fracture dressings for the humerus, and after dislocation of the acromial end of the clavicle.

DESCENDING SPICA.

2½ inches by 7 yards.

Fix the initial extremity to the upper part of the arm. Carry the roller to the base of the

FIG. 40.

neck, and pass across the front of the chest (or the back, if the left side is being bandaged) to the opposite axilla. Return across the back (or front of the chest, if the left side) to the base of the neck on the injured side. In the de-

scending spica, the upper border of the bandage determines the position of the spica. The upper borders of this turn and the preceding one should, therefore, coincide at the junction of the base of the neck and summit of the shoulder (Fig. 40).

FIG. 41.

Pass under the axilla on the injured side, and so continue overlapping two-thirds at the spica, descending and converging under the axilla on the sound side, until the shoulder is covered (Fig. 41). Pin the terminal extremity at the spica, or at any point in front.

Uses.—To retain dressings higher up on the

shoulder than can be neatly done by the ascending spica.

SPIRAL REVERSED BANDAGE OF THE UPPER EXTREMITY.

2½ inches by 7 yards.

Fix the initial extremity at the wrist, carrying the roller from left to right in bandaging either

FIG. 42.

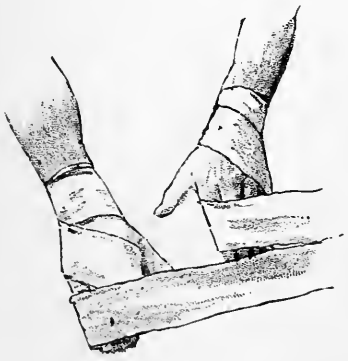


FIG. 43.

side. Pass across the back of the hand (from the ulnar to the radial side, if the right hand, and from the radial to the ulnar, if the left) to the tips of the fingers (Fig. 42). Here make a

circular and a spiral reversed turn. Two figure-of-eight turns above and below the thumb are then made (Fig. 43), and the roller is carried up to the wrist. Continue up the forearm with spiral turns until the diameter of the latter increases sufficiently to render reverses necessary (Fig. 44). Make these until a point near the elbow is

FIG. 44.

FIG. 45.

reached, when spiral turns take their place until the increasing diameter of the arm requires reversing upon. A few more spiral turns complete the bandage (Fig. 45). The elbow may be

covered, particularly if the forearm is to be retained in a flexed position, by figure-of-eight turns, as shown in Fig. 46, and presently to be described.

Uses.—To retain dressings and splints to the part, etc.

FIGURE-OF-EIGHT BANDAGE OF THE ELBOW.

2½ inches by 2 yards.

Fix the initial extremity on the forearm a little below the elbow. Carry the roller across the

FIG. 46.

front of the joint to the highest point on the arm which the bandage is to cover. Descend across the joint, and encircle the forearm at a point overlapping (ascending) the fixing turns

two-thirds. Again ascend across the front of the joint to a point which overlaps the preceding turn two-thirds (descending). So continue until the elbow, except the olecranon, is covered, when a final circular turn is made over the latter and the terminal end pinned (Fig. 46).

Uses.—To retain dressings to the part, and to cover the elbow in the spiral reversed of the upper extremity.

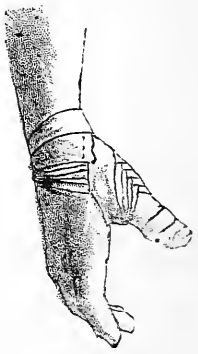
SPICA BANDAGE OF THE THUMB.

ASCENDING SPICA.

1 inch by 3 yards.

Fix the initial extremity at the wrist, carry the roller to the tip of the thumb, and make a circular turn. Make a series of figure-of-eight turns of the thumb and wrist, overlapping (ascending) two-thirds; the intersections, or spicas, being made over the dorsum of the thumb (Fig. 47). Pin the terminal end at the wrist.

FIG. 47.



Uses.—To retain dressings and splints to the part.

DESCENDING SPICA.

1 inch by 3 yards.

Fix the initial extremity at the wrist, carry the roller to the metacarpo-phalangeal joint of the thumb, and make a circular turn. Return to the wrist, and, with alternating thumb and wrist turns which overlap two-thirds, descend towards the tip of the thumb. Here also each spica should be made over the dorsum of the thumb. The terminal end is secured at the wrist (Fig. 48).

FIG 48.

Uses.—To retain dressings, and after luxation of the base of the metacarpal bone of the thumb.

GAUNTLET BANDAGE.

1 inch by 5 yards.

Fix the initial extremity at the wrist, and carry the roller abruptly across the back of the hand to the tip of the index finger (if the right hand, to the tip of the little finger, if the left), and make a circular turn, after which the finger is ascended by a series of spiral turns. Some reverses are necessary if the fingers are œdematous, or if a very bulky dressing is to be retained, but ordinarily none. When the finger is covered, pass across the back of the hand to the wrist, and make here another circular turn. In like manner each finger is bandaged, and finally the thumb, when the terminal end is pinned at the wrist (Fig. 49).

FIG. 49.

Uses.—To retain dressings after burns and scalds. To apply splints. One or two fingers only are generally covered, the dressing as a whole being seldom used.

DEMI-GAUNTLET BANDAGE.

1 inch by 3 yards.

Fix the initial extremity at the wrist. Carry the roller across the back of the hand to the base of the index finger (if the right hand, to the base of the little finger if the left), encircle this, and return in the opposite direction across the back of the hand to the wrist. So continue until all have had this loop thrown over them, including finally the thumb, when the terminal extremity is pinned at the wrist (Fig. 50). Here, as in the gauntlet, it is better to make a complete circular turn of the wrist after each finger is covered.

FIG. 50.

Use.—To retain light dressings to the dorsum of the hand.

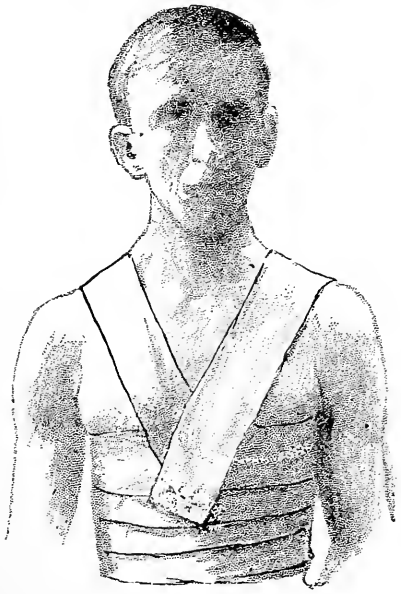
BANDAGES OF THE TRUNK.

SPIRAL BANDAGE OF THE CHEST.

3 inches by 7 yards.

FIX the initial extremity about the waist.

FIG. 51.



Ascend the chest by spiral turns, overlapping

one-half, until a point just below the axillæ is reached. At the sternum, recur across the right shoulder to the spine, and back across the left shoulder to the sternum. Secure each recurrent with a pin (Fig. 51).

Uses.—To support the chest, as after fracture of the ribs, or to retain dressings to it.

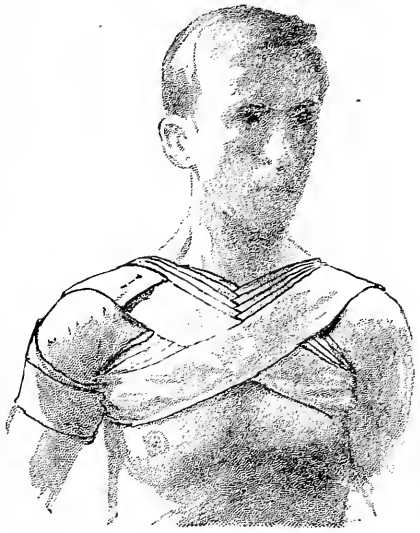
ANTERIOR FIGURE-OF-EIGHT BANDAGE OF THE CHEST.

2½ inches by 7 yards.

Fix the initial extremity on the upper part of the right arm, and carry the roller across the shoulder and front of the chest to the left axilla. Pass under this, over the left shoulder, and across the front of the chest to the right axilla. Encircle the right shoulder from below upwards, and return to the left side as before. So proceed until four or five turns have been made. These may repeat one another throughout, or may overlap three-quarters over the sternum.

The terminal end is secured at any convenient point in front (Fig. 52).

Fig. 52.



Uses.—To approximate the shoulders in front. To retain dressings.

POSTERIOR FIGURE-OF-EIGHT BANDAGE OF THE CHEST.

2½ inches by 7 yards.

Fix the initial extremity on the upper part of the left arm. Carry the roller over the summit of the left shoulder, and across the back to the

FIG. 53.

right axilla. Passing under this, and to the summit of the shoulder, again cross the back to the left axilla, where the left shoulder is encircled in the same way. After making four or five of

these turns, pin the terminal end in front. Each turn may repeat throughout, or overlap over the spine three-quarters, as shown in Fig. 53.

Uses.—To draw the shoulders together behind. To retain dressings over the upper part of the back.

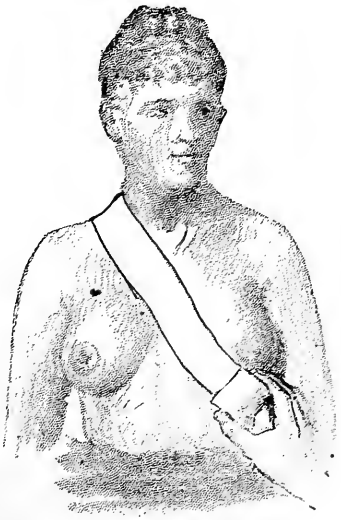
SPICA BANDAGES OF THE BREAST.

SINGLE SPICA.

2½ inches by 7 yards.

Place the initial extremity on the scapula upon

FIG. 54.



the affected side. Carry the roller across the

back to the summit of the opposite shoulder, and thence down under the lower portion of the affected breast, beneath the axilla, to the starting-point. Repeat this turn (Fig. 54) to fix the initial extremity. On reaching the scapula the second time, make the first circular turn around

Fig. 55.

the chest. This should pass under the sound breast and across the lower border of the affected breast. Having completed this circular, another shoulder turn is made, which overlaps the previous one three-quarters, ascending. Then another circular, which overlaps the preceding circular

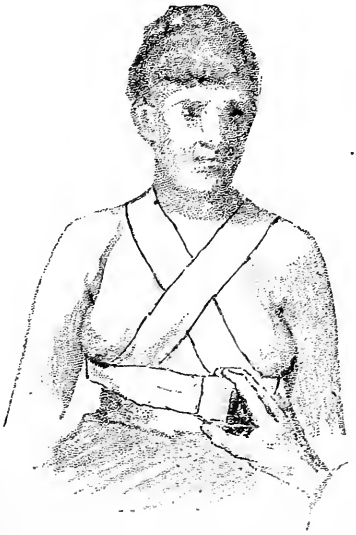
one-half over the affected breast, three-quarters under the sound breast. So shoulder turns and circulars alternate, until the breast is thoroughly supported, when the terminal end may be pinned at any point in front (Fig. 55).

Uses.—To retain dressings to the part. To give support and produce compression.

DOUBLE SPICA.

2½ inches by 10 yards.

FIG. 56.



The initial extremity is fixed in the same way as in applying the single spica (Fig. 54). On

reaching the left scapula the second time, carry the roller straight across the back to the right scapula, under the axilla and right breast to the opposite shoulder. Passing from here to the right scapula, the first circular turn begins. It should encircle the chest on a line that will include the lower border of both breasts (Fig. 56). When

FIG. 57.

this turn is completed, the roller passes to the summit of the right shoulder, and descends to include the left breast. Again it is carried across the back, under the right axilla, and ascends, including the right breast, to the left shoulder.

Then a second circular turn is made. In this way left breast, right breast, and circular turns alternate, the two former overlapping two-thirds, the latter one-half, until both breasts are covered. Three series of spicas are thus formed,—one over the sternum and one under each breast (Fig. 57). The terminal extremity may be pinned at any point in front.

Uses.—To retain dressings, and to give support and pressure to both mammæ.

BANDAGES OF THE LOWER EXTREMITY.

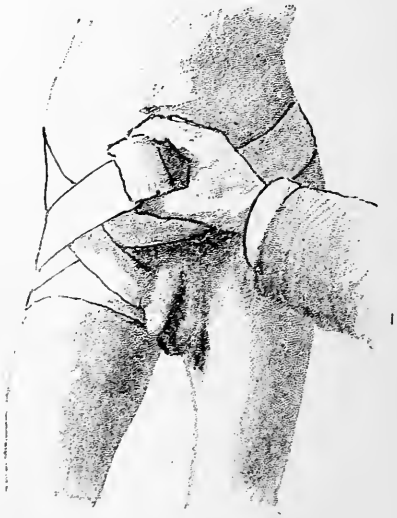
SINGLE SPICA BANDAGE OF THE GROIN.

2½ inches by 7 yards.

ASCENDING SPICA.

Fix the initial extremity about the upper part

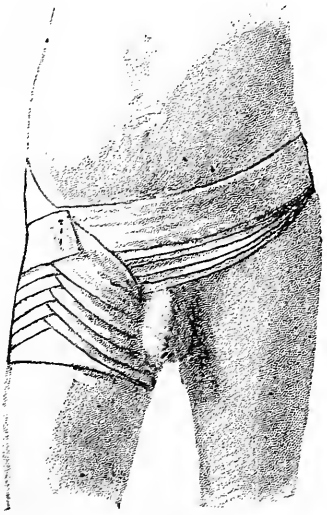
Fig. 58.



of the thigh, and carry the roller across the pubis to the crest of the ilium on the opposite side

(bandaging from left to right for the right thigh, and from right to left for the left). Thence around the body, return to the starting-point and encircle the thigh. As the lower border of the roller in each turn determines the position of the spica, it should intersect directly in front of the thigh and the roller be made to overlap two-thirds, ascend-

FIG. 59.



ing (Fig. 58). On crossing the pubis a second time the roller is made to converge towards the former turn, so that when it reaches the crest of the ilium it will repeat it. Proceed again to the thigh, and so continue until the bandage is exhausted. In securing the terminal end, thrust

the pin in a sufficient depth to include any dressing which may have been applied, as the latter is very liable to become displaced (Fig. 59).

Uses.—To retain dressings to the groin. To keep herniæ restored; and to complete the application of splints to the thigh.

DESCENDING SPICA.

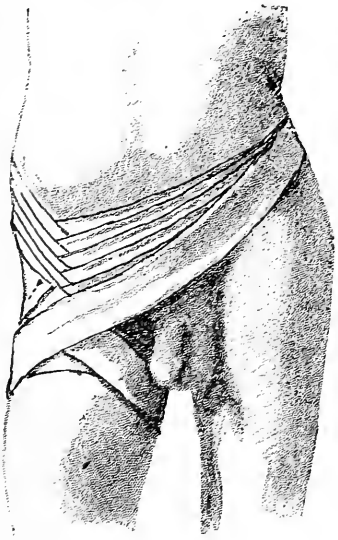
Fix the initial extremity at the uppermost portion of the thigh. Carry the roller across the

FIG. 60.

highest part of the abdomen which it is intended to cover, and proceed across the back to the groin.

In this bandage the upper border of the roller forms the spica, this turn, therefore, must cross the preceding one so that their upper borders coincide directly in front (Fig. 60). Encircle the thigh, overlapping, descending, two-thirds. Pass

FIG. 61.



the roller across the abdomen and make it converge towards the former turn, so that when the opposite side is reached it will repeat it, when it at once begins to diverge towards the groin. So continue until the roller runs out, when the terminal end is pinned deeply over the spica (Fig. 61).

Uses.—The same as the preceding bandage. It is

often not decided which of these to apply until after the first turn is made, when it may be determined to extend the turns above or below the fixing-point.

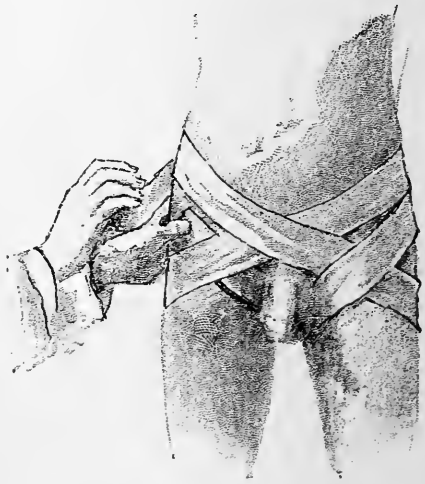
DOUBLE SPICA BANDAGE OF THE GROIN.

2½ inches by 10 yards.

ASCENDING SPICA.

Fix the initial extremity upon the upper por-

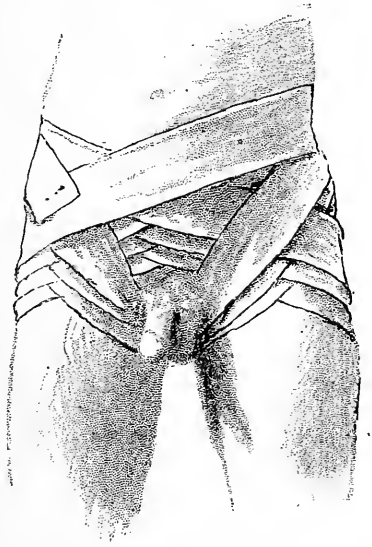
FIG. 62.



tion of the right thigh, or retain it with the thumb of the left hand until the first turn is made (the latter economizes the bandage). After

encircling the thigh, carry the roller across the pubis to the left iliac crest and straight across the back to the corresponding point on the right side. Passing over the pubis again, encircle the left thigh, and return by the back to the starting-point in front of the right thigh (Fig. 62). Three

FIG. 63.



spicas are begun in the first series of turns, and as each intersection of the lower border of the roller determines the location of these spicas, each must be made in its proper place in the median line of the abdomen and directly in front of each thigh. So continue overlapping two-

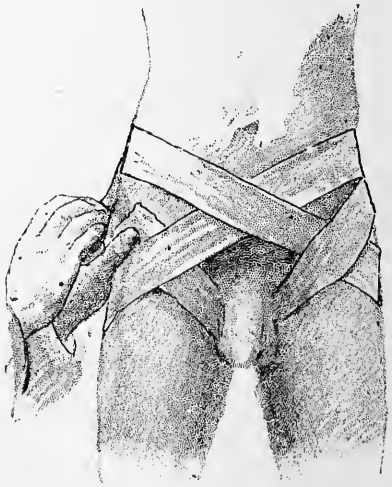
thirds, ascending in front and repeating behind, in the order right thigh, body, left thigh, body, right thigh, etc., until three or four complete turns have been made, when the terminal end may be pinned over a spica (Fig. 63).

Uses.—To retain double hernia. To make pressure or apply dressings to both groins.

DESCENDING SPICA.

Fix the initial extremity on the uppermost por-

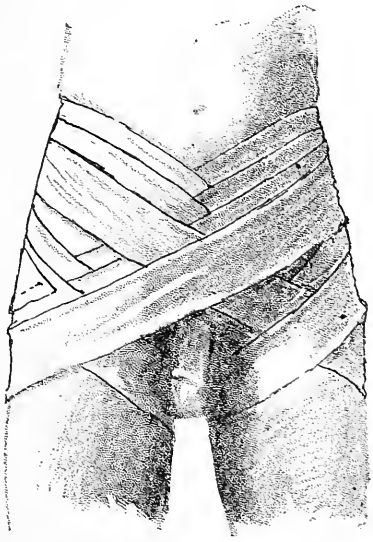
FIG. 64.



tion of the right thigh, or retain it with the thumb of the left hand until the first turn is

made. Having encircled the thigh, carry the roller across the highest part of the abdomen, which is to be covered, to the opposite side. Cross the back horizontally, and descend over the abdomen to the left thigh and encircle it. Convey the roller again across the back, descending on

FIG. 65.



the right side to the starting-point over the right thigh (Fig. 64). Here, as in the preceding dressing, there are to be three spicas. The intersection of the upper border of the roller in the median line and in front of each thigh determines the position of each spica. So proceed, overlap-

ping two-thirds, descending in the order just described for the ascending spica, until three or four complete turns have been made, when the terminal extremity may be pinned over either spica (Fig. 65).

Uses.—The same as the preceding bandage. Whether to employ one or the other is often decided, as in the single spica, after the first turn is made.

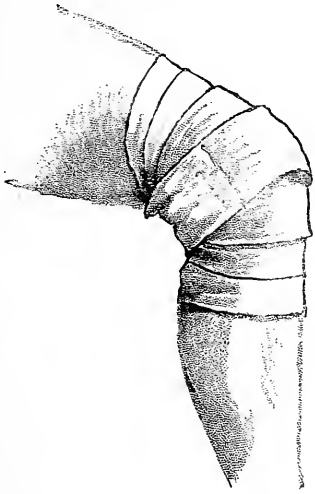
FIGURE-OF-EIGHT BANDAGE OF THE KNEE.

2½ inches by 2 yards.

Fix the initial extremity about two and a half inches below the knee, and carry the roller diagonally across the popliteal space to a point on the thigh the same distance above the joint. Here make a circular, and descend across the popliteal space to the leg, overlapping the preceding turn two-thirds, ascending. Pass again in a similar manner across the popliteal space, and encircle the thigh, overlapping the previous turn two-thirds, descending. So continue to approximate leg and thigh turns until the knee is covered,

except directly over the patella, when a final circular over this point completes the dressing. The terminal end may be secured at any point (Fig. 66).

FIG. 66.



Uses.—To retain splints and dressings to the knee-joint, and as a part of the spiral reversed bandage of the lower extremity.

SPICA-BANDAGE OF THE FOOT.

2½ inches by 3 yards, for the foot alone.

Fix the initial extremity at the ankle, and con-

vey the roller abruptly across the dorsum of the foot to the base of the toes. Around the foot at this point make a circular turn, then a spiral, and proceed to the heel. The roller crosses the latter at a point which will bring its lower border on a line with the sole of the foot. Thence return across the dorsum and make the first spica. The lower border of the roller being the guide (as

FIG. 67.

this is an ascending spica), it must intersect that of the previous turn in the median line and overlap three-quarters, ascending. This ascending overlap is continued for every succeeding turn behind the heel, as well as around the foot, during the entire application. Another foot turn being

completed, the roller is carried to the heel. So foot and heel turns alternate until the former is completely covered, and the latter, except its point (Fig. 67). The terminal end may be pinned at any convenient point, or the bandage continued up the leg.

Uses.—To retain dressings to any part of the foot. To make pressure or give support. Also to commence the spiral reversed bandage of the lower extremity.

INCOMPLETE BANDAGE OF THE FOOT.

2½ inches by 2 yards, for the foot alone.

Fix the initial extremity, and carry the roller

FIG. 68.

across the dorsum of the foot, as in the preceding dressing. Make one circular, one spiral, and

one spiral reversed turn around the foot, overlapping two-thirds, ascending (Fig. 68), and proceed across the instep to the ankle. Here make a circular, and again crossing the instep, make another foot turn. The ankle and foot each receive another turn, overlapping the preceding one

Fig. 69.

two-thirds, when the terminal end is either pinned at the ankle or the roller continued up the leg (Fig. 69). The heel is not covered.

Uses.—To retain dressings, and to commence the spiral reversed bandage of the lower extremity.

COMPLETE BANDAGE OF THE FOOT.

2½ inches by 3 yards, for the foot alone.

Fix the initial extremity, carry the roller across the foot, make a circular turn, a spiral, and a

spiral reversed, all as in the dressing just described. Starting, after these turns have been made, at the instep, carry the roller across the

FIG. 70.

point of the heel back to the instep (Fig. 70). From here pass to the sole of the foot, and around the side of the heel under the malleolus (the

FIG. 71.

outer, if the right foot, the inner, if the left) to the tendo Achillis (Fig. 71), and to the instep. Again to the sole of the foot, beneath the other malleolus to the tendo Achillis, and back to the

instep (Fig. 72). The terminal extremity is either pinned here, or the roller carried up the leg. The turns under each malleolus must also be pinned. This bandage covers the heel.

Fig. 72.

Uses.—To retain dressings, and make uniform pressure upon the ankle-joint. Also to commence the spiral reversed bandage of the lower extremity.

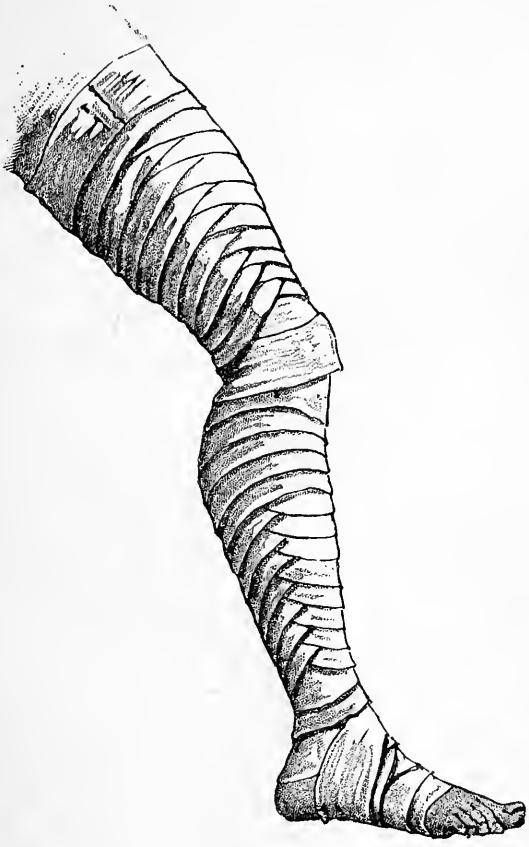
SPIRAL REVERSED BANDAGE OF THE LOWER EXTREMITY.

2½ inches by 7 yards to the knee, 14 yards to the groin.

Fix the initial extremity, and cover the foot by either of the three methods above described. After the foot has been covered, proceed with spiral turns, overlapping two-thirds up the leg,

until its increasing diameter necessitates reverses. After which spiral turns, or if the calf be very

Fig. 73.



much swollen or a bulky dressing has been applied to it, descending spiral reverses, continue until the knee is reached. The terminal end is here pinned. If the roller is to be carried up to

the groin, figure-of-eight turns will be made to cover the knee (see page 85), and spirals and spiral reverses, as indicated by the contour of the limb, will complete the dressing (Fig. 73).

Uses.—To retain dressings, splints, extension apparatus to the part, and to give support for various conditions.

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